CHAPTER 3
ALTERNATIVES

3.1 INTRODUCTION

In the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508) implementing the National Environmental Policy Act (NEPA) it states that alternatives are the heart of the environmental process. Those regulations require that the Federal decision-maker perform the following tasks:

- Rigorously explore and objectively evaluate all reasonable alternatives, ("reasonable" meaning alternatives that are practicable or feasible from a technical and economic standpoint and common sense), including alternatives not within the jurisdiction of the Federal agency; for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- Devote substantial treatment to each alternative considered in detail, including the No Action Alternative and the preferred alternative, so that reviewers may evaluate their comparative merits.
- Identify the airport sponsor's preferred alternative or alternatives.[1]

This chapter has been organized to address each of these tasks and provide through summary exhibits a comparative summary of the advantages and disadvantages of reasonable alternatives.

The Proposed Actions for the improvement program at Gary/Chicago International Airport have been described in detail in Chapter 2, Purpose and Need, of this EIS. For the purposes of the alternatives analysis, five different areas of improvement have been identified for analysis. Within these five areas of improvements there are various connected actions that are considered incidental to the Proposed Action; that is, they would not occur without the implementation of the Proposed Action. The five areas for improvement are summarized below:

3.1.1 Improvements to Conform to Current FAA Standards

The existing Runway 12-30 is proposed to be improved to conform to the current FAA standards for runway safety areas contained in *FAA Advisory Circular 150/5300-13* while maintaining at least the existing runway length of 7,000 feet for all operations. Improvements associated with the existing Runway 12-30, the primary air carrier runway at the airport, include (numbering refers to Chapter 2, Purpose and Need, of this EIS): 1) acquire land northwest of airport to allow for modifications to runway safety area (RSA); 2) relocate EJ&E Railway, with phased relocation; 3) modify ongoing cleanup activities for compatibility; 4) relocate airside perimeter roadway (including addition of southwest

[1] Council on Environmental Quality – 40 CFR 28 1502.14

access road); 5) bury transmission line; 6) extend Runway 12 to the northwest (approximately 546 feet by 150 feet); 7) relocate Runway 12-30 navaids; 8) improve/grade RSA for Runway 12 (approximately 1,100 feet); 9) relocate Runway 12 threshold to remove prior displacement; 10) displace Runway 30 threshold using declared distance standards approximately 546 feet to the northwest to improve Runway 30 RSA; 11) extend parallel Taxiway A to new end of Runway 12; and 12) acquire land southeast of airport, located within or immediately adjacent to runway protection zone (RPZ). These airside improvements are needed to increase the margin of safety and to conform to FAA standards.

3.1.2 Improvements to Provide Additional Runway Length

The existing Runway 12-30 is proposed to be extended to provide additional runway length totaling 8,900 feet so that the current air carrier and cargo operators may operate Airport Reference Code (ARC) C-III aircraft within a 1,500-mile range from the Gary/Chicago International Airport efficiently with the appropriate load factors and to the destinations desired. This improvement will increase the margin of safety for users of the airport, while providing a facility that effectively and efficiently meets the demands of existing users and any potential users. This improvement is not dependent on growth in operations but type of aircraft currently in use at the airport. Improvements associated with providing additional runway length are proposed to occur simultaneously with and require the accomplishment of the improvements to conform to FAA standards described in Chapter 2, Purpose and Need, in this EIS. They include: acquire additional land or rights northwest of existing runway; extend Runway 12-30 to the northwest (up to approximately 1,354 feet by 150 feet); relocate Runway 12 navaids; extend parallel Taxiway A to new end of Runway 12; 13) construct deicing hold pads on Taxiway A at the ends of Runway 12 and Runway 30; 14) develop two high-speed exit taxiways; improve/grade extended Runway 12 safety area (approximately 1,100 feet); relocate Runway 12 threshold to end of extended runway pavement. These airside improvements will increase the margin of safety for users of the Gary/Chicago International Airport and conform to FAA standards, while providing a facility that effectively and efficiently meets the demands of the existing users and forecast low-growth activity.

3.1.3 Railroad Relocation

Although the relocation of the EJ&E Railway tracks (2) is needed to increase the margin of safety to the existing Runway 12-30 and to accommodate an extension of Runway 12-30, this action has been grouped as a separate area for alternatives analysis. There are multiple alternatives for the railroad relocation project that could meet the requirements of the airside improvement program. Even so, the railroad relocation project is one of the more challenging aspects of the airport improvement program because of the operational requirements of the stakeholders. This is demonstrated by the fact that the railroad relocation was identified as needed since the 1970s, but this relocation has not yet occurred.

3.1.4 Existing Terminal Facility Expansion

The 2001 Airport Master Plan proposed that the existing terminal building be expanded toward the east to accommodate future facilities. The immediate expansion project that has independent utility is to occur to the east and will use most of the available expansion area, so long as a 1-story building continues to be used as the airport terminal. For the Proposed Action, the terminal building expansion will either be an addition of a second story to the east or 1-story expansion both to the east and to west.

The Proposed Action addresses the potential to provide approximately an additional 22,000 square feet of space for existing and prospective airport tenants in addition to the 2004-2005 expansion. The total size of the terminal building following the 2004-2005 expansion and the Proposed Action would be 53,000 square feet. This future expansion would also include the addition of one aircraft gate to the expanded lounge area, for a total of four gates at the Gary/Chicago International Airport.[2] Expanding the current facility would allow it to adequately serve the expected demand in the short-term; however, due to its constrained location, the current facility cannot be expanded to meet the potential passenger demand, which may occur beyond the 20-year baseline forecast.[3] Sufficient room is under study at the existing terminal building site for the total square footage for the future terminal building to be accomplished either as a 1-story or 2-story facility. With an expansion to the west, the terminal building may either encompass the current ARFF facility or require its relocation. The ARFF building relocation is possible but not expected to occur at this time nor is it expected to occur in the foreseeable future.

An expansion of the associated terminal apron area to the east identified as a part of the 2001 Airport Master Plan was needed immediately to accommodate efficient movement of existing aircraft using the terminal facility; it is being accomplished in phases with the first phase completed to allow for the installation of the jet bridge. This apron expansion has been environmentally assessed outside of this environmental review because it had independent utility and was not dependent on the low case forecast utilized in the 2001 Airport Master Plan. The apron expansion was found to be eligible for a categorical exclusion.

As a part of the 2004-2005 terminal improvements, an additional 1,250 square yards of apron is needed to the east. This project has independent utility and is to be environmentally reviewed outside of this EIS.

[2] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

[3] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

As part of this EIS analysis, it is proposed that the existing apron between Taxiways C and A2 be expanded to create an additional 5,500 square yards of terminal apron space. This expansion would allow aircraft to taxi behind aircraft parked at the terminal building, allowing for a free-moving terminal area.[4]

3.1.5 Acquisition and Reservation of Areas for Passenger Terminal and Cargo Facilities

Beyond the low case/baseline projection, the current passenger facility (even with the expansion proposed above) may be unable to meet the potential demands depending on the type of passenger service provided. See Section 3.1.4 about some of the existing problems regarding security and baggage. In addition, the current cargo area (16) cannot be expanded to meet the forecast long-term demand for Gary/Chicago International Airport. The need for significantly expanded or new terminal and cargo facilities to meet the demands of the airport are not expected in the near-term; however, the long lead-time necessary for environmental remediation of contaminated land and property acquisition has led the Gary/Chicago International Airport to support environmental review of acquiring and reserving land for major facility development as part of this EIS. Much of the land will be acquired as part of the railroad relocation. The land needed for this would result in minimal impacts. It is prudent to set it aside for potential use. This environmental review is for site acquisition and remediation. Actual development to meet the long-term terminal needs at this site will require a future environmental document specific to the then proposed development.

3.2 ALTERNATIVES EVALUATION PROCESS

The FAA has completed a thorough and objective review of reasonable alternatives to Gary/Chicago International Airport's Proposed Action. The FAA has generated alternatives, on its own and through the Master Planning process for the Gary/Chicago International Airport, for evaluation in this EIS. CEQ regulations require that an agency look at "reasonable" alternatives, while *49 U.S.C. 47106(1)(c)(C)* requires, as a condition to granting Federal funds, analysis of "feasible and prudent" alternatives for a Proposed Action when significant impacts would occur.[5] With those standards in mind, the FAA did not evaluate airside or landside alternatives in detail if they did not meet the project purpose and need, as described previously in the EIS in Chapter 2, Purpose and Need. The alternatives analysis process has been conducted in three levels as identified below:

- **Level 1, Purpose and Need** – A level 1 analysis was performed to determine which alternatives meet the purpose and need criteria as described in Chapter 2, Purpose and Need, of this EIS. Alternatives that did not meet the purpose and need criteria for the project were not considered further in this EIS.

[4] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

[5] Council on Environmental Quality – 40 CFR 28 1502.14.

- **Level 2, Constructablility and Cost** – The level 2 analysis considered the constructability and relative costs for implementing an alternative. Constructability issues considered factors such as land acquisition, extent of earthwork required, necessity to relocate aviation-related facilities, and impact to ongoing airport operations. Cost was evaluated based on preliminary cost estimates or as compared to other alternatives. Those alternatives that met the second level criteria were retained for evaluation in level 3.

- **Level 3, Environmental Impacts** – The environmental impacts evaluated in level 3 focused on resource categories having measurable impact to threshold criteria defined in *FAA Order 5050.4, Airport Environmental Handbook*. Major known environmental issues in the airport area have been identified and considered, including wetlands, habitat, water resources, and site contamination. Those alternatives that remained after the level 3 evaluation are considered in detail in Chapter 5, Environmental Consequences, of this EIS.

3.3 ALTERNATIVES EVALUATED FOR IMPROVEMENTS TO CONFORM TO CURRENT FAA STANDARDS

Exhibit 3-1 provides an overview of the eight alternatives evaluated for the development of the airside to meet FAA standards and maintain at least the existing runway length. Two of the airside improvement alternatives were off-airport and the other six were on-airport (including the no action alternative).

3.3.1 Alternatives Considered to Conform to Current FAA Standards

3.3.1.1 Alternative Modes of Transportation

The use of alternative modes of transportation will not address the fact that the existing RSAs do not meet Federal standards. Without resolving the RSAs the primary runway will need to be shortened and would no longer meet the runway length requirements of commercial airlines and critical corporate aviation users of the Gary/Chicago International Airport. Generally, air travelers that use commercial airlines have trip lengths of more than 300 miles. Alternative modes of transportation, such as rail, bus, or automobile, offer feasible alternatives for some air travelers, particularly those traveling 250 miles or less. Beyond 250 miles, alternative modes of transportation become less desirable. Fuel costs and the value of time require that people traveling long distances do so in a quick and efficient manner in order to lessen travel time and associated costs.

Using other modes of transportation denies the commercial and general aviation traveler the high degree of mobility and convenient access to the national system of airports that is provided by Gary/Chicago International Airport. Alternative modes will not meet the demands of the traveling public. They cannot efficiently replace the air transportation component.

EXHIBIT 3-1
Airside Alternatives to Conform to Current FAA Standards Analysis Matrix

		Off-Site Alternatives		On-Site Alternatives					
Level	Criteria	Alternative Modes of Transportation	Alternative Airports	No-Action	Install EMAS	Improve Runway 12-30 on north end	Improve Runway 12-30 on south end	Realign Runway 12-30	Replace Runway 12-30
1	**Purpose and Need**								
	Remedy dimensional constraints: Runway Safety Area and runway protection zone	No	No	No	No	Yes	No	Yes	Yes
	Maintain at least existing runway length	No	No	No	No	Yes	No	Yes	Yes
	Continue to Next Level?	**No**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**
2	**Constructability and Cost**								
	Meet FAA standards			No		Yes		Yes	Yes
	Land acquisition requirements			No		Yes		Yes	Yes
	Railroad relocation requirements			No		Difficult		Difficult	Difficult
	Roadway relocation requirements			No		No		Yes	Yes
	Earthwork and drainage issues			No		No		Difficult	Difficult
	Relocation of aviation facilities			No		No		No	Yes
	Maintenance of airport operations			Shorter runway		Some disruption		No	Some disruption
	Cost effectiveness			Minimal		Lowest development cost		Greater cost than improve existing runway	Greater cost than improve existing runway
	Continue to Next Level?			**Yes**		**Yes**		**Yes**	**Yes**
3	**Environmental**								
	Avoid or minimize social impacts			Yes		Yes		No	No
	Avoid or minimize environmental impacts			Yes		Yes		No	No
	Wetland impacts			No		Yes		Yes	Yes
	Floodplain impacts			No		No		Yes	Yes
	Potential hazardous waste or contamination			No		Yes		Yes	Yes
	Analyze in Chapter 5.0?			**Yes**		**Yes**		**No**	**No**

Source: Aerofinity, Inc., July 2003.

3.3.1.2 Use of Alternative Airports

Use of other airports involves the transfer of all or some of the activity at Gary/Chicago International Airport to other existing or proposed area airports. Gary/Chicago International Airport, prior to attaining status as a commercial service airport, had been identified as a reliever airport for Chicago Midway International Airport. Also, the Gary/Chicago Airport Authority has an agreement with United Airlines making Gary/Chicago International Airport a designated airport for diversion of aircraft when O'Hare International Airport or other destinations are not available. The purpose of a reliever is to attract operations from the relieved airport thereby increasing the available capacity for the remaining operations at the busier airport. Moving the activity to a new airport would not be prudent from the standpoint of the significant amount of funds already invested in infrastructure at Gary/Chicago International Airport that would have to be duplicated elsewhere.

Transfer All the Activity -- Transferring all the activity from Gary/Chicago International Airport to other existing airports in the Chicago area only further increases the congestion at the other airports. Moving all the activity to a new airport such as the proposed South Suburban Airport would require duplicating already existing facilities and would not be prudent from the standpoint of the amount of funds that have already been invested by the City of Gary, the Gary/Chicago Airport Authority, the Federal government, the State of Indiana and other parties in a viable Gary/Chicago International Airport. In both cases it eliminates the economic benefits to Northwestern Indiana and Indiana, and decreases the convenience of shipping cargo and traveling by air by increasing the travel time for the freight companies and passengers. In addition, transferring all of the activity to another airport could only be done by closing Gary/Chicago International Airport and it has grant assurances with the Federal Aviation Administration that prohibit it from closing.

Transfer Some of the Activity -- If the FAA standard RSAs are to be accommodated within the existing boundaries of Gary/Chicago International Airport by reducing the runway length and using declared distances, the larger aircraft operations would have to be transferred to other existing or proposed airports. Under this scenario many of the corporate operations and all of the passenger and cargo air service operations would have to be transferred to other area airports. As discussed above, as a reliever Gary/Chicago International Airport should be serving these types of operations. In addition, there are limited airports in the Chicago area with at least 7,000 feet of runway length (the existing length at Gary/Chicago International Airport), as shown in **Exhibit 3-2**.

EXHIBIT 3-2 Airports in the Chicago Area With at Least 7,000 Feet of Runway Length		
Airport	**Longest Runway Length**	**Travel Time from Gary/ Chicago International Airport**
South Bend Regional	8,400'	1 hour 8 minutes
South Suburban Airport (Proposed)	>7,000' (Proposed)	46 minutes
Indianapolis International	11,200'	2 hours 40 minutes
Fort Wayne International	12,000'	3 hours 7 minutes
Chicago O'Hare International*	13,000'	54 minutes
Greater Peoria Regional	10,000'	2 hours 45 minutes
Gerald R. Ford International	10,000'	2 hours 51 minutes

*Improvements are being studied for O'Hare as part of the O'Hare modernization program.

Source: Aerofinity, Inc., May 2003. Travel times by car are estimated by Aerofinity based upon internet MapQuest search[6].

In addition to these airports, three other facilities with more than 6,000 feet of runway length are within two hours travel time. They have been listed below in **Exhibit 3-3**. However, at least one of these, Chicago Midway International Airport has similar non-standard RSAs.

EXHIBIT 3-3 Airports Within Two Hours Travel Time With at Least 6,000 Feet of Runway Length		
Airport	**Longest Runway Length**	**Travel Time from GYY**
Purdue University	6,600'	1 hour 59 minutes
Chicago Midway International	6,522'	40 minutes
Kalamazoo International	6,500'	1 hour 56 minutes

Source: Aerofinity, Inc., May 2003. Travel times by car are estimated by Aerofinity based upon internet MapQuest search[7].

Transferring larger aircraft operations from Gary/Chicago to other airports decreases the convenience of traveling by air by increasing the travel time for the passengers and eliminates much of the economic benefits of the Gary/Chicago International Airport.

[6] MapQuest, 2004. Internet Web Site <http://www.mapquest.com/directions/>.
[7] MapQuest, 2004. Internet Web Site <http://www.mapquest.com/directions/>.

3.3.1.3 No Action on Runway 12-30

The No Action alternative on Runway 12-30 assumes a continuation of the status quo conditions, with no change from existing facilities. Under these conditions the project area would continue to function as it is today, with active or abandoned industrial and residential properties, existing railroads and roadways in close proximity to the existing 7,000-foot runway.

The FAA mandate is to improve RSAs nationwide by 2007. Therefore, if no action is taken to correct the RSAs through improvements to the runway, then Runway 12-30 will not conform to FAA standards and meet the FAA mandate. Therefore, this alternative does not meet the purpose and need of the project.

Without the proposed improvements to meet current FAA standards, shortening the runway would be the only method to provide obstruction free areas off the runway ends. As described in the FAA's September 8, 2000 RSA Determination, If Runway 12-30 were shortened to provide FAA standard RSA beyond the ends, within the existing airport property and without modifying existing constraints, with the implementation of declared distance standards, the resulting available runway lengths would be:

- Runway 12 landing distance 4,850 feet
- Runway 12 takeoff run 5,850 feet
- Runway 30 landing distance 4,850 feet
- Runway 30 takeoff run 6,000 feet.[8]

This is less than the runway length required to support the current corporate operators and air service operators. A shorter runway would eliminate use of the airport by its primary economic base and is not an economically feasible alternative. Also, this alternative would not even maintain the existing usable runway length, reducing the margin of safety for the existing users.

3.3.1.4 Install EMAS on Runway 12-30

EMAS is an engineered material designed to absorb the energy of an aircraft that leaves the runway environment and bring it to a stop without damaging the aircraft. Per the FAA's September 8, 2000 Runway 12-30 RSA Determination Letter,

> *"The limited distance from the end of Runway 12 to the perimeter road and railroad embankment would preclude the use of EMAS on the Runway 12 end. Also, with*

[8] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport*. September 8, 2000.

limited air carrier operations, it does not appear practicable to install EMAS at the end of Runway 30."[9]

If the perimeter road and railroad are relocated, it should be feasible to establish RSAs meeting the current FAA standards. The consideration of EMAS is for locations in which FAA standard RSAs cannot be provided. Thus, if FAA standards RSAs could be provided the consideration of EMAS is not needed to meet the purpose and need of providing FAA standard RSAs.

3.3.1.5 Improve Existing Runway 12-30

As described in the FAA's September 8, 2000 RSA Determination,

"The runway (12-30) is located in a very constricted area shaped like a wedge. The E.J. & E. railroad, perimeter road and perimeter ditch form the base of the wedge. The end of Runway 12 is located next to the base formed by the perimeter ditch, road and railroad tracts. The Grand Calumet River forms one of the sides of the wedge and US Highway 12 (Industrial Highway) forms the other side of the wedge. The end of Runway 30 is physically located in the point of the wedge. Within the existing airport boundaries, the runway cannot be relocated, shifted or realigned as any movement in one direction exacerbates the problem in the opposite direction. To gain any additional RSA length in one direction causes an equal loss in RSA length in the other direction."[10]

Since the RSAs cannot be improved within existing airport property it is necessary to consider land acquisition and obstruction removal to meet the purpose and need. Consideration has been given both to improving the runway on the north end or south end.

Improvements on North End – Under this alternative, Runway 12-30 would be extended approximately 546 feet to the northwest with a FAA standard 500 foot wide by 1,000 foot long RSA beyond the end. In addition, the Runway 30 threshold would be displaced using declared distance standards approximately 546 feet to the northwest as necessary to provide a FAA standard RSA on this end as well. As discussed in the FAA RSA Determination

"If it were feasible to relocate the railroad, relocate the perimeter road, bury the power line, enclose the perimeter ditch, acquire the needed acres of contaminated property and receive permitting to allow construction of a runway and taxiway extension, then it would also appear to be feasible that this same activity would

[9] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport*. September 8, 2000.

[10] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport*. September 8, 2000.

allow the runway to be slipped to the northwest to provide a full 1,000 foot long by 500 foot wide RSA beyond both ends of the runway."[11]

Improvements on the South End – Under this alternative, Runway 12-30 would be extended approximately 900 feet to the southeast with a FAA standard 500 foot wide by 1,000 foot long RSA beyond the end. In addition, the Runway 12 threshold would be relocated approximately 900 feet to the southeast to provide a FAA standard RSA on this end as well.

The Grand Calumet River is the first obstruction encountered on the south end of Runway 12-30. As described in the FAA's RSA Determination,

"At approximately 420 feet from the Runway 30 end and 250 feet left of the extended runway centerline the Grand Calumet River intercepts the Runway 30 RSA. The river continues eastward and at 1,000 feet from the Runway 30 end and 80 feet left of the extended runway centerline the Grand Calumet River exits the Runway 30 RSA. The river occupies the southeastern 1.13 acres of the 11.48 acres RSA.

In addition, the first 100 feet of ground north of and paralleling the river is marshy and wetlands. At approximately 230 feet from the end of Runway 30 and at 250 feet left of the extended runway centerline this wetland intercepts the Runway 30 RSA. The wetlands continue eastward and at 1,000 feet from the end of Runway 30 and 10 feet left of the extended runway centerline the wetlands exit the Runway 30 RSA. The wetlands occupy an additional 1.6 acres, approximately on the southeastern side of the RSA."

Even if permitting could be obtained to fill the wetlands and enclose or relocate the Grand Calumet River, immediately beyond the Grand Calumet River is the Indiana Toll Road, a four lane (2 lanes each direction) elevated interstate highway. Immediately south of the toll road is the wastewater treatment plant for the Gary Sanitary District. Therefore, it is not feasible to extend the RSAs to the southeast to provide standard RSAs or to extend Runway 12-30 900 feet to the southeast with standard RSAs. Any increase in area to the south will create environmental impacts and decrease constructability.

3.3.1.6 Realign Runway 12-30

One of the alternatives considered was to realign the Runway 12-30. However, the existing runway alignment maximizes the runway length within the wedge shaped area described above.

[11] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport*. September 8, 2000.

Therefore, no realignment alternatives will increase the RSA area within the existing airport boundaries. If additional land is acquired and obstructions removed, an alternative to realign the Runway 12-30 could meet the purpose and need.

3.3.1.7 Replace Runway 12-30

With the constraints around Runway 12-30 consideration has been given to replacing the runway outside the existing airfield area or with an extended crosswind runway. Public comment during the Master Plan suggested locating the replacement runway on the Industrial Highway alignment and relocating the highway. Other comments received during the Master Plan process included and expressed concern about environmental impacts associated with an extended crosswind runway or airfield development north of Industrial Highway. However, replacing Runway 12-30 with a runway on or north of Industrial Highway or extension of the crosswind could meet the purpose and need through increasing the operating margin of safety by providing FAA standard RSAs while providing at least the existing runway length of 7,000 feet. Therefore, further consideration has been given to replacement of the primary runway.

3.3.2 Level 1 Screening of Alternatives to Conform to Current FAA Standards

The Federal Aviation Administration, with the assistance of the Gary/Chicago Airport Authority, identified a statement of purpose and need for the proposed improvement as summarized in Chapter 2, Purpose and Need, of this EIS, which has been coordinated with various review agencies as a part of the evaluation process. The relevant portion for these alternatives is repeated below.

- The purpose of the Proposed Action of improving Runway 12-30 is to comply with current FAA safety standards on the existing Runway 12-30. There is a need to improve the existing runway to increase the operating margin of safety and comply with FAA standards.

Of the eight alternatives reviewed above, three alternatives meet the purpose and need requirements. These alternatives plus the no action alternative have been carried forward for further analysis in the next level of screening. The alternatives carried forward for level 2 screening include:

- No action alternative (does not meet purpose and need but is carried forward to meet the requirements of CEQ/NEPA).
- Improve Runway 12-30 on the north end of the runway.
- Realign Runway 12-30 in order to meet the purpose and need requirements.
- Replace Runway 12-30 in order to meet the purpose and need requirements.

Four alternatives do not meet the purpose and need and have been eliminated because of the summarized reason listed below:

- Alternative Modes of Transportation – will not meet purpose and need and denies the commercial and general aviation traveler the high degree of mobility and convenient access to the national system of airports that is provided by Gary/Chicago International Airport.
- Alternative Airports – will not meet purpose and need and decreases the convenience of traveling by air by increasing the travel time for passengers and eliminates much of the economic benefits of the Gary/Chicago International Airport.
- Install EMAS – will not meet purpose and need because of proximity of perimeter roadway and railway.
- Improve Runway 12-30 on the south end of the runway – will not meet purpose and need because of proximity of Grand Calumet River and Indiana Toll Road.

3.3.3 Level 2 Screening of Alternatives to Conform to FAA Standards

The operational/constructability and cost considerations applicable to the airside improvements at Gary/Chicago International Airport include:

- *Can the proposed improvements operate within the existing airspace structure?* Gary/Chicago International Airport operates within the national air transportation system. Proposed improvements that would cause major interference with other existing airports, and thereby potentially reduce overall regional transportation capacity are not acceptable. Also, improvements need to be compatible within the local surrounding environs.
- *Will the proposed improvements meet FAA standards?* Any proposed improvements that will utilize Federal funding will need to meet FAA design standards.
- *Are the proposed improvements cost effective?* Funds from multiple sources will be needed to implement any of the proposed capital improvements. Investment that provides a greater benefit compared to the cost is preferable, but safety improvements usually do not have a quantifiable benefit.

Three development alternatives and the No Action alternative were identified under the airside level 1 screening for further analysis. The airside level 2 analyses will consider whether the alternatives are reasonable, feasible or prudent.

3.3.3.1 No Action Runway 12-30

Under this alternative there is no change in the existing airfield configuration. This configuration operates within the exiting airspace structure and could continue to operate within the existing airspace structure. However, no action does not meet FAA standards since FAA standard RSAs

will not be available. Accordingly, the no action alternative cannot be judged on its cost effectiveness since it does not meet the purpose and need. Also, as cited earlier in this chapter, modifying the runway length and implementing declared distance standards to meet the Federal criteria would result in available runway lengths of up to 6,000 feet for takeoff and less than 5,000 for landing, which is less than the runway length required to support the current corporate operators and air service operators. A shorter runway would eliminate use of the airport by its primary economic base and is not an economically feasible alternative.

3.3.3.2 Improve Existing Runway 12-30 to the North

Improving existing Runway 12-30 to the north was depicted on the 2001 Airport Layout Plan and received airspace approval. Therefore, these proposed improvements could operate within the existing airspace structure and obstructions can be removed to meet the recently revised U.S. Terminal Instrument Procedures (TERPS) criteria for Instrument Flight Rules (IFR) Departures Procedures. Also, these proposed improvements were found to meet FAA standards. Improving existing Runway 12-30 to the north makes maximum use of the existing runway and airport infrastructure. One of the substantial investments in the proposed improvement is the railroad relocation, which is necessary for all of the remaining development alternatives. The clean up of contaminated property prior to construction may also be a significant investment, which is necessary for all of the remaining development alternatives.

3.3.3.3 Realign Runway 12-30

Depending on the amount of realignment, a realigned Runway 12-30 may or may not be able to operate within the existing airspace structure. An airspace analysis would be necessary to determine its airspace compatibility. The realignment of Runway 12-30 could be planned to meet FAA standards.

The realignment of Runway 12-30 would result in the construction of a new 7,000-foot air carrier runway. This is not feasible within the existing airport boundaries. Therefore, land acquisition and railroad relocation would be necessary to realign Runway 12-30. The construction of an entirely new runway would increase the construction cost above the cost to improve the existing Runway 12-30. Therefore, this alternative is not as cost effective as improving the existing runway. Because this alternative involves more land acquisition than improving the existing runway, it also has a greater potential for social and environmental impacts. Although this alternative is not as reasonable, feasible or prudent as improving the existing runway it does not require the development of a new terminal area and has therefore been retained for further analysis under the next screening level.

3.3.3.4 Replace Runway 12-30

The replacement of Runway 12-30 would change its location and potentially its alignment. An airspace analysis would be necessary to determine its airspace compatibility. The replacement of Runway 12-30 would need to be planned to meet FAA standards. To meet FAA clearance standards it is anticipated that the existing terminal area would need to vacated and reconstructed in another area of the airport sooner than with the other remaining alternatives.

The replacement of Runway 12-30 outside the existing airfield area is not cost effective due to the need to replace not only the runway but also the terminal area and Industrial Highway; however, the replacement of the primary runway by extending the crosswind runway does not require the development of a new airfield facility and has therefore been retained for further analysis under the next screening level.

3.3.4 Level 3 Screening of Alternatives to Conform to FAA Standards

The third level of screening focuses on environmental issues, such as:

- *Will the proposed improvements avoid or minimize social impacts?* Any infrastructure changes, particularly any that extend beyond the existing boundary of Gary/Chicago International Airport, may involve some degree of social impacts. Alternatives that minimize the overall level of community disruption are more desirable than those that would cause greater levels of disruption.
- *Will the proposed improvements avoid or minimize environmental impacts?* Any infrastructure changes, particularly any that extend beyond the existing boundary of Gary/Chicago International Airport, may involve some degree of environmental impacts. Alternatives that minimize environmental impacts are ranked more favorably than sites that cause greater environmental impacts.

3.3.4.1 No Action

Based on the airfield level 2 screening criteria, the No Action alternative ranks highest in terms of its ability to avoid social and environmental impacts. However, it does not meet the purpose and need and was retained for further analysis only in accordance with CEQ requirements.

3.3.4.2 Improve Runway 12-30

Extending Runway 12-30 to the north involves less environmentally sensitive areas than improvements to the south. There are wetlands and potential areas of environmental contamination located on the north end of the Runway 12-30.

3.3.4.3 Realign Runway 12-30

Because of the wedge shape of the existing airport property, for the realignment of Runway 12-30 to be feasible, the runway would need to be shifted north as a part of the realignment process. This would involve a larger area of land acquisition and have greater social impacts. Because it would involve a larger area of new construction it has a greater potential for social and environmental impacts. There are wetlands and potential areas of environmental contamination located on the north end of the Runway 12-30. This alternative would involve new flight paths with the potential to expose significant new populations to noise impacts. Accordingly, this alternative has been eliminated from further analysis based upon the level 3 screening as having greater social and environmental impacts to an extent that it is not considered a practicable alternative for further detailed analysis.

3.3.4.4 Replace Runway 12-30

The replacement of Runway 12-30 outside the existing airfield would involve the largest area of land acquisition and have greatest social impacts from not only the new runway construction, but also the road relocation and terminal area replacement. An expansion of the crosswind runway to replace the primary runway would still involve railroad relocation and likely involve the clean up of contaminated property. In addition, there is a sensitive Dune and Swale area owned by the airport located north of Industrial Highway that could be impacted by this alternative. This alternative would involve new flight paths with the potential to expose significant new populations to noise impacts. Accordingly, this alternative has been eliminated from further study based upon the level 3 screening as having greater social and environmental impacts to an extent that it is not considered a practicable alternative for further detailed analysis.

3.3.5 Description of Alternatives to Conform to Current FAA Standards for Detailed Analysis

3.3.5.1 No Action

The No Action alternative would mean no expansion of the airport boundaries either through no changes to the runway or shortening the existing runway to provide FAA standard RSAs. However, this alternative does not meet the purpose and need, but has been retained per CEQ requirements.

3.3.5.2 Improve Existing Runway 12-30

Improving Runway 12-30 involves acquiring land northwest of the airport to allow for modification to the RSA and other necessary improvements, extending Runway 12-30 approximately 546 feet to the northwest and using declared distance relocating Runway 30 threshold approximately 546 feet to the northwest resulting in approximately 7,546 feet of runway pavement with 7,000 feet available for landings on Runway 12 and 30 and accelerate stop distance on Runway 12 and approximately 7,546 feet available for all other operations, establishing FAA standard RSAs on both ends of the runway; relocating the necessary navaids to ultimate location shown on the ALP

except for the PAPI4-s and REILs on Runway 12, which would be relocated to serve the approximately 546-foot extended runway, and removing/relocating the needed obstructions including the EJ&E Railway, power line and perimeter road. In addition, modifications would be made, as necessary, to the ongoing clean-up activities off the runway end (Conservation Chemical site and pipeline from MIDCO II) to assure compatibility with the runway improvements. The Gary/Chicago Airport Authority prefers this airside alternative to conform to current FAA standards.

3.4 ALTERNATIVES EVALUATED FOR IMPROVEMENTS TO PROVIDE ADDITIONAL RUNWAY LENGTH

Exhibit 3-4 provides an overview of the seven alternatives evaluated to meet the runway length requirements to provide takeoff and landing capabilities for cost effective travel by (ARC) C-III aircraft within 1,500-mile range from the Gary/Chicago International Airport. Two of the airside improvement alternatives were off-airport and the other five were on-airport (including the no action alternative). The Master Plan Update recommended a primary runway extension for a total of 8,900 feet. The review of the current corporate, cargo and passengers users, as well as the post September 11, 2001 trends, validated the recommended 8,900 feet as an appropriate primary runway length to provide the majority of the air carriers operating ARC C-III aircraft the opportunity to maximize the utility of their aircraft at Gary/Chicago International Airport while providing flexibility in the type of aircraft the carrier could operate from the airport.

3.4.1 Alternatives Considered to Provide Additional Runway Length

3.4.1.1 Alternative Modes of Transportation

The use of alternative modes of transportation will not address the fact that the existing length is not adequate to provide takeoff and landing capabilities for cost effective travel by Airport Reference Code C-III aircraft within a 1,500-mile radius of the Gary/Chicago International Airport so that the current air carrier and cargo operators may operate efficiently with the appropriate load factors and to the destinations desired. It would also benefit any potential users. Generally, air travelers that use commercial airlines have trip lengths of more than 300 miles. Alternative modes of transportation, such as rail, bus, or automobile, offer feasible alternatives for some air travelers, particularly those traveling 250 miles or less. Beyond 250 miles, alternative modes of transportation become less desirable. Fuel costs and the value of time require that people traveling long distances do so in a quick and efficient manner in order to lessen travel time and associated costs.

Using other modes of transportation denies the commercial and general aviation traveler the high degree of mobility and convenient access to the national system of airports that is provided by Gary/Chicago International Airport. Alternative modes will not meet the demands of the traveling public. They cannot efficiently replace the air transportation component.

EXHIBIT 3-4
Airside Alternatives to Provide Additional Runway Length Analysis Matrix

		Off-Site Alternatives		On-Site Alternatives				
Level	Criteria	Alternative Modes of Transportation	Alternative Airports	No-Action	Extend Runway 12-30 on north end	Extend Runway 12-30 on south end	Realign Runway 12-30	Replace Runway 12-30
1	**Purpose and Need**							
	Remedy dimensional constraints: Runway Safety Area and runway protection zone	No	No	No	Yes	No	Yes	Yes
	Runway length to accommodate existing and projected critical aircraft users	No	No	No	Yes	No	Yes	Yes
	Continue to Next Level?	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
2	**Constructability and Cost**							
	Meet FAA standards			No	Yes		Yes	Yes
	Land acquisition requirements			No	Yes		Yes	Yes
	Railroad relocation requirements			No	Difficult		Difficult	Difficult
	Roadway relocation requirements			No	No		Yes	Yes
	Earthwork and drainage issues			No	No		Difficult	Difficult
	Relocation of aviation facilities			No	No		No	Yes
	Maintenance of airport operations			Shorter runway	Some disruption		No	Some disruption
	Cost effectiveness			Minimal	Lowest development cost		Greater cost than improve existing runway	Greater cost than improve existing runway
	Continue to Next Level?			**Yes**	**Yes**		**Yes**	**Yes**
3	**Environmental**							
	Avoid or minimize social impacts			Yes	Yes		No	No
	Avoid or minimize environmental impacts			Yes	Yes		No	No
	Wetland impacts			No	Yes		Yes	Yes
	Floodplain impacts			No	No		Yes	Yes
	Potential hazardous waste or contamination			No	Yes		Yes	Yes
	Analyze in Chapter 5.0?			**Yes**	**Yes**		**No**	**No**

Source: Aerofinity, Inc., July 2003.

3.4.1.2 Use of Alternative Airports

Use of other airports involves the transfer of all or some of the activity at Gary/Chicago International Airport to other area airports. Gary/Chicago International Airport, prior to attaining status as a commercial service airport, had been identified as a reliever for Chicago Midway International Airport. Also, the Gary/Chicago Airport Authority has an agreement with United Airlines making Gary/Chicago International Airport a designated airport for diversion of aircraft when O'Hare International Airport or other destinations are not available. The purpose of a reliever is to attract operations from the busier airport thereby increasing the available capacity for the remaining operations at the busier airport.

Transfer All the Activity -- Transferring all the activity from Gary/Chicago International Airport to the other airports in the Chicago area only further increases the congestion at the other airports and eliminates the economic benefits of the Gary/Chicago International Airport. Moving all the activity to a new airport such as the proposed South Suburban Airport would require duplicating already existing facilities. This would not be prudent from the standpoint of the amount of funds that have already been invested by the City of Gary, the Gary/Chicago Airport Authority, the Federal government, the State of Indiana and other parties in a viable Gary/Chicago International Airport for Northwestern Indiana and Indiana. This would decrease the convenience of shipping cargo and traveling by air by increasing the travel time for the freight companies and passengers. In addition, transferring all of the activity to another airport could only be done by closing Gary/Chicago International Airport and it has grant assurances with the Federal Aviation administration that prohibit it from closing.

Therefore, the transference of all of the activity at Gary/Chicago International Airport to other airports is not a reasonable alternative to increasing the operating margin of safety by providing additional runway length.

Transfer Some of the Activity -- Another use of other airports is to provide the additional runway length by transferring the larger aircraft operations to other area airports. Under these alternatives many of the corporate operations and much of the passenger and cargo air service operations would need to be transferred to other area airports. As discussed above, prior to attaining status as a commercial service airport, Gary/Chicago International Airport had been identified as a reliever; therefore, should be serving these types of operations. Also, the Gary/Chicago Airport Authority has an agreement with United Airlines making Gary/Chicago International Airport a designated airport for diversion of aircraft when O'Hare International Airport or other destinations are not available. In addition, there are a limited number of airports in the Chicago area with more than 7,000 feet of runway length (the existing length at Gary/Chicago International Airport), as shown previously in Exhibit 3-2.

Transferring larger aircraft operations from Gary/Chicago to other airports decreases the convenience of traveling by air by increasing the travel time for the passengers and eliminates much of the economic benefits of the Gary/Chicago International Airport. Therefore, it is not a reasonable alternative to increasing the operating margin of safety by providing additional length.

3.4.1.3 No Action on Runway 12-30

No Action on Runway 12-30 to provide more than the existing 7,000-feet of runway length continues to constrain the current and future users in air carrier and air cargo operations. This results in less efficient operations and does not increase the margin of safety of Runway 12-30 to allow all-year, all-weather operations by ARC C-III aircraft within a 1,500 nautical mile range without load restrictions.

3.4.1.4 Improve Existing Runway 12-30

Consideration has been given both to improving the runway on the north end or south end to provide the appropriate additional runway length.

Provide Additional Runway Length on North End – Under this alternative, Runway 12-30 would be extended to a total of up to approximately 1,900 feet to the northwest (approximately 1,354 feet beyond the approximately 546 feet to provide a FAA standard RSA on Runway 30) with a FAA standard 500 foot wide by 1,000 foot long RSA beyond the Runway 12 end. As shown in Chapter 2, Purpose and Need, of this EIS, with the declared distances 8,354 feet of Accelerate Stop Distance Available would be present on Runway 12 and 8,354 feet of Landing Distance Available would be present on Runway 12 and 30. For all other operations, the full 8,900 feet of runway would be available. The improvements to provide additional runway length on the north end of Runway 12-30 would occur simultaneously with and require accomplishment of improvements to conform Runway 12-30 to current FAA standards, described in earlier in this chapter.

Improvements on the South End – Under this alternative, Runway 12-30 would be extended to the south with a FAA standard 500 foot wide by 1,000 foot long RSA beyond the end and a RSA meeting FAA standards provided on the north end, Runway 12. The Grand Calumet River is the first obstruction encountered on the south end of Runway 12-30. Even if permitting could be obtained to fill the wetlands and enclose or relocate the Grand Calumet River, immediately beyond the Grand Calumet River is the Indiana Toll Road, a four lane (2 lanes each direction) elevated interstate highway. Immediately south of the toll road is the wastewater treatment plant for the Gary Sanitary District. Therefore, it is not feasible to provide additional runway length on the south end.

3.4.1.5 Realign Runway 12-30

One of the alternatives considered was to realign the Runway 12-30. However, the existing runway alignment maximizes the runway length within the wedge shaped area described in earlier in this chapter. Therefore, no realignment alternatives will increase runway length within the existing airport boundaries. If additional land is acquired and obstructions removed, an alternative to realign the Runway 12-30 could meet the purpose and need of providing additional runway length on Runway 12-30.

3.4.1.6 Replace Runway 12-30

With the constraints around Runway 12-30 consideration has been given to replacing the runway outside the existing airfield area or with an extended crosswind runway. Public comment during the Master Plan suggested locating the replacement runway on the Industrial Highway alignment and relocating the highway. Other comments received during the Master Plan process included and expressed concern about environmental impacts associated with an extended crosswind runway or airfield development north of Industrial Highway. However, replacing Runway 12-30 with a runway on or north of Industrial Highway or extension of the crosswind could meet the purpose and need through increasing the operating margin of safety by providing additional runway length. Therefore, further consideration has been given to replacement of the primary runway.

3.4.2 Level 1 Screening of Alternatives to Provide Additional Runway Length

The Federal Aviation Administration, with the assistance of the Gary/Chicago Airport Authority, identified a statement of purpose and need for the proposed improvements as summarized in Chapter 2, Purpose and Need, which is being coordinated with various review agencies as a part of the evaluation process. The relevant portion for these alternatives is repeated below.

- The purpose is to provide takeoff and landing capabilities for cost effective travel by ARC C-III aircraft within a 1,500-mile range from the Gary/Chicago International Airport. There is a need to provide the runway length to meet the requirements of current and future users.

Of the seven alternatives reviewed above, three alternatives meet the purpose and need requirements. These alternatives plus the no action alternative have been carried forward for further analysis in the next level of screening. The alternatives carried forward for level 2 screening include:

- No action alternative (does not meet purpose, but is carried forward to meet the requirements of CEQ/NEPA).
- Improve Runway 12-30 on the north end of the runway.
- Realign Runway 12-30 in order to meet the purpose and need requirements.
- Replace Runway 12-30 in order to meet the purpose and need requirements.

Three alternatives identified in Section 3.4.1 do not meet the purpose and need and have been eliminated because of the summarized reason listed below:

- Alternative Modes of Transportation – will not meet purpose and need and denies the commercial and general aviation traveler the high degree of mobility and convenient access to the national system of airports that is provided by Gary/Chicago International Airport.
- Alternative Airports – will not meet purpose and need and decreases the convenience of traveling by air by increasing the travel time for passengers and eliminates much of the economic benefits of the Gary/Chicago International Airport.
- Improve Runway 12-30 on the south end of the runway – will not meet purpose and need because of proximity of Grand Calumet River and Indiana Toll Road.

3.4.3 Level 2 Screening of Alternatives to Provide Additional Runway Length

The operational/constructability and cost considerations applicable to the airside improvements at Gary/Chicago International Airport include:

- *Can the proposed improvements operate within the existing airspace structure?* Gary/Chicago International Airport operates within the national air transportation system. Proposed improvements that would cause major interference with other existing airports, and thereby potentially reduce overall regional transportation capacity are not acceptable. Also, improvements need to be compatible within the surrounding local environs.
- *Will the proposed improvements meet FAA standards?* Any proposed improvements that will utilize Federal funding will usually need to meet FAA design standards, or will have received an appropriate modification to design standards. Runway safety area improvements are not eligible to receive a modification to standards. See discussion in Section 1.4 of this EIS.

- *Are the proposed improvements cost effective?* Funds from multiple sources will be needed to implement any of the proposed capital improvements. Investment that provides a greater benefit compared to the cost is preferable.

Three development alternatives and the No Action alternative were identified under the airside level 1 screening for further analysis. The airside level 2 analyses will consider whether the alternatives are reasonable, feasible or prudent.

3.4.3.1 No Action Runway 12-30

Under this alternative there is no change to provide more than the existing 7,000 feet of runway length. A 7,000-foot runway operates within the existing airspace structure and could continue to operate within the existing airspace structure. However, no action continues to constrain the current and future users in air carrier and air cargo operations. This results in less efficient operations and does not increase the margin of safety of Runway 12-30 to allow year round, all-weather operations by ARC C-III aircraft within a 1,500 nautical mile range with out load restrictions. Accordingly, the no action alternative cannot be judged on its cost effectiveness since it does not meet the purpose and need.

3.4.3.2 Improve Existing Runway 12-30 to the North

Extending existing Runway 12-30 to the north was depicted on the ALP and received airspace approval. Therefore, these proposed improvements could operate within the existing airspace structure and the extension can be designed so that obstructions are removed to maximize the available runway length while accommodating the recently revised TERPS IFR departure criteria. Also, these proposed improvements were found to meet FAA standards. Improving existing Runway 12-30 to the north makes maximum use of the existing runway and airport infrastructure. One of the substantial investments in the proposed improvement is the railroad relocation, which is necessary for all of the remaining development alternatives. The clean up of contaminated property prior to construction may also be a significant investment, which is necessary for all of the development alternatives.

3.4.3.3 Realign Runway 12-30

Depending on the amount of realignment, a realigned Runway 12-30 may or may not be able to operate within the existing airspace structure. An airspace analysis would be necessary to determine its airspace compatibility. The realignment of Runway 12-30 could be planned to meet FAA standards.

The realignment of Runway 12-30 would involve the construction of a new 8,900-foot air carrier runway. To accommodate the realignment, land acquisition, road and railroad relocation would be needed. The construction of an entirely new runway would increase the construction cost above the cost to extend and improve the existing Runway 12-30. Therefore, this alternative is not as

cost effective as improving the existing runway. Although this alternative is not as reasonable, feasible or prudent as improving the existing runway, it does not require the development of a new terminal area and has therefore been retained for further analysis under the next screening level.

3.4.3.4 Replace Runway 12-30

The replacement of Runway 12-30 would involve the construction of a new 8,900-foot air carrier runway that would change its location and potentially its alignment. An airspace analysis would be necessary to determine its airspace compatibility. The replacement of Runway 12-30 could be planned to meet FAA standards. To meet FAA clearance standards it is anticipated that the existing terminal area would need to vacated and reconstructed in another area of the airport sooner than with the other remaining alternatives.

The replacement of Runway 12-30 outside the existing airfield area is not cost effective due to the need to construct a new 8,900-foot runway but also the terminal area and relocation of Industrial Highway. However, the replacement of the primary runway by extending the crosswind runway does not require the development of a new airfield facility and has therefore been retained for further analysis under the next screening level.

3.4.4 Level 3 Screening of Alternatives to Provide Additional Runway Length

The third level of screening focuses on environmental issues, such as:

- *Will the proposed improvements avoid or minimize social impacts?* Any infrastructure changes, particularly any that extend beyond the existing boundary of Gary/Chicago International Airport, may involve some degree of social impacts. Alternatives that minimize the overall level of community disruption are more desirable than those that would cause greater levels of disruption.
- *Will the proposed improvements avoid or minimize environmental impacts?* Any infrastructure changes, particularly any that extend beyond the existing boundary of Gary/Chicago International Airport, may involve some degree of environmental impacts. Alternatives that minimize environmental impacts are ranked more favorably than sites that cause greater environmental impacts.

3.4.4.1 No Action

Based on the airfield level 2 screening criteria, the No Action alternative ranks highest in terms of its ability to avoid social and environmental impacts. However, it does not meet the purpose and need and was retained for further analysis only in accordance with CEQ requirements.

3.4.4.2 Improve Runway 12-30

Extending Runway 12-30 to the north involves less environmentally sensitive areas than improvements to the south. There are wetlands and potential areas of environmental contamination located on the north end of the Runway 12-30.

3.4.4.3 Realign Runway 12-30

Because of the wedge shape of the existing airport property, for the realignment of Runway 12-30 to provide an 8,900-foot air carrier runway, it would need to be shifted north with associated land acquisition and road and railroad relocation. This would involve a larger area of land acquisition and have greater social impacts. Because it would involve a larger area of new construction, it has a greater potential for social and environmental impacts. There are wetlands and potential areas of environmental contamination located on the north end of Runway 12-30. This alternative would involve new flight paths with the potential to expose significant new population to noise impacts. Accordingly, this alternative has been eliminated from further analysis based upon the level 3 screening as having greater social and environmental impacts to an extent that it is not considered a practical alternative for further analysis.

3.4.4.4 Replace Runway 12-30

The replacement of Runway 12-30 outside the existing airfield would involve the largest area of land acquisition and have greatest social impacts from not only the new runway construction, but also the road relocation and terminal area replacement. An expansion of the crosswind runway to provide an 8,900-foot primary runway would still involve railroad relocation and likely involve the clean up of contaminated property. In addition, there is a sensitive Dune and Swale area owned by the airport located north of Industrial Highway that could be impacted by this alternative. This alternative would involve new flight paths with the potential to expose significant new populations to noise impacts.

3.4.5 Description of Alternatives to Provide Additional Runway Length for Detailed Analysis

3.4.5.1 No Action

The No Action alternative would mean no change to provide more than a 7,000-foot runway. However, this alternative does not meet the purpose and need, but has been retained per CEQ requirements.

3.4.5.2 Extend Existing Runway 12-30

Improving Runway 12-30 involves the extension of Runway 12-30 to the northwest for a total runway length of 8,900 feet with FAA standard RSAs on both ends of the runway, relocation of the Runway 12 navaids and removing/relocating any obstructions as necessary. The improvements to extend existing Runway 12-30 would occur simultaneously with and/or require the accomplishment of the improvements to conform Runway 12-30 to current FAA standards described earlier in this

chapter. The Gary/Chicago Airport Authority prefers this airside alternative to provide additional runway length.

3.5 ALTERNATIVES EVALUATED FOR EJ&E RAILWAY RELOCATION

Exhibit 3-5 provides an overview of ten alternatives evaluated for the relocation of the EJ&E Railway (including the no action alternative and interim refinement for preferred alternative). TranSystems Corporation was contracted by the Gary/Chicago Airport Authority to study relocation alternatives for the EJ&E Railway. The EJ&E Railway currently operates 8 to 12 trains a day over their line. Their rail route is owned, maintained and dispatched by the EJ&E Railway and their representatives stated that the only acceptable alternatives will have to preserve their ability to control their operation (i.e., not subject to other railroad's movements or dispatching). That provision eliminated some potential reroutes over the other railroad facilities. In addition, the Federal Railroad Administration required that any proposed solution accommodate the planned Midwest High Speed Rail system.[12]

Initially, four preliminary alternatives were developed using aerial photography obtained from the Northwest Indiana Regional Planning Commission (NIRPC). Also, known future area plans such as the Four City Consortium Plan to consolidate and move the CSX rail line to the Indiana Harbor Belt Railroad (IHB) were considered in developing alternatives. Frequent contact with, and input from, area railroads was maintained throughout the alternatives development process. Presentation of the four preliminary alternatives led to five new or revised alternatives, which were later reduced to four final alternatives that allow EJ&E Railway varying levels of control over their operations. These final alternatives were developed and reviewed in cooperation with rail stakeholders. Community and business stakeholders throughout the area were also contacted and input solicited in development of the alternatives.[13]

3.5.1 Railway Relocation Alternatives Considered

3.5.1.1 No Action -- EJ&E Railway Stays in Operation in Current Location

Runway 12-30 is constrained by the EJ&E Railway to the northwest and the Grand Calumet River to the southeast. Without relocating or removing one of these constraints, the runway will not achieve the Federal mandate for improved RSAs. As stated earlier, the FAA mandate is to improve RSAs nationwide by 2007. Therefore, if no action is taken to relocate the EJ&E Railway in order to correct the Runway 12-30 RSAs, then the runway would need to be shortened to provide the obstruction free areas off the runway ends. As cited earlier in this chapter, modifying

[12] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

[13] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

EXHIBIT 3-5
Rail Alternatives Analysis Matrix

Level	Criteria	No-Action	CSX Porter Branch to Chase Street (Initial Alt 1)	IHB-Dune Park Branch to east End of Kirk Yard (Initial Alt 2)	Whiting Branch - IHB Main Line (Initial Alt 3)	Cline Ave/ BOCT Bar Subdiv. (New Alt 1) Final Route 1D	Cline Ave/ BOCT Bar Subdiv. (New Alt 1) Interim Route 1E	NICTD-South Shore Alignment (New Alt 2)	Chicago Steel Company Alignment (New Alt 3)	Combination Tunnel/ Trench under runway both single and double track (Initial and New Alt 4)	Multi-modal Facility Center (New Alt 5)
1	**Purpose and Need**										
	Remedy dimensional constraints: Runway Safety Area and runway protection zone	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Alternative accepted by E.J.&E. Railway as possible to implement	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
	Allows EJ&E to maintain competitive market position for itself and customers	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
	Allows EJ&E to maintain control of all train movements upon selected alternative (Train Dispatching)	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
	Runway length to accommodate existing and projected critical aircraft users	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Alternative will not preclude development of 8,900 ft runway	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Continue to Next Level?	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
	If no, primary reason:		Chase Street not acceptable routing	No -- route too circuitous and would cause reconfiguration of EJ&E Kirk Yard	No -- required trackage rights from IHB and NS, EJ&E would lose dispatch control	Screen for Level 2	Screen for Level 2	Screen for Level 2	No -- route too circuitous and costly. Segment of route dispatched by CSX. EJ&E exposed to increased highway crossings liability	Screen for Level 2	Screen for Level 2
2	**Constructability and Cost**										
	Cost effectiveness	None				Yes	Yes	Mid-range		High	High
	Constructability concerns	No				Additional Grade Crossing Exposure	None	Alignment under NICTD Bridge		Unknown environmental impact of below grade water table	Commits airport to long-term investments
	Allows for future airport growth	No				Yes	No	Yes		Yes	Yes
	Provides route for future high speed rail through adjacent area	No				Yes	Yes	Yes		Yes	Yes
	Reduce risk exposure to all stakeholder railroads affected by selected alternative					No	No	No		Yes	Yes
	Compatibility with Four Cities Consortium Plans	No				No - Requires Fly-over at Ivanhoe Interlocking	No - Requires Fly-over at Ivanhoe Interlocking	No - Requires Fly-over at Ivanhoe Interlocking		Unknown - May Require Fly-over at Ivanhoe Interlocking	Unknown - May requires Fly-over at Ivanhoe Interlocking
	Continue to Next Level?	**Yes**				**Yes**	**Yes**	**Yes**		**No**	**No**
	If yes, provide latest cost estimate					$22.6M	$10M	$26.5M		No -- Extremely High Cost of Project. Further study led to Alternative #5	No -- unknown environmental impact of below grate water table
3	**Environmental**										
	Avoids or minimizes social impacts	Yes				Yes	Yes	Acquisition of additional homes may be required			
	Avoids or minimizes environmental impacts	Yes				Yes	Yes	Proximity to protected areas raised as an issue, mitigation anticipated to increase cost			
	Analyze in Chapter 5?	**Yes**				**Yes**	**Yes**	**No**			

Source: TranSystems Corporation, Aerofinity, Inc., May 2003, with updated information for Route 1D/1E, 2004.

the runway length and implementing declared distance standards to meet the Federal criteria would only result in available runway lengths of up to 6,000 feet for takeoff and less than 5,000 for landing, which is less than the runway length required to support the current corporate operators and air service operators.

3.5.1.2 CSX Porter Branch to Chase Street (Former Alternative #1)

The EJ&E Railway approaches the Ivanhoe Interlocking[14] from the south. The double track main line would turn east through private land and access the CSX Porter Branch right-of-way. The CSX Porter Branch is planned to be relocated parallel to the IHB right-of-way as part of the Four City Consortium plan currently underway. This route continues east to Chase Street, where it would curve northward by occupying a corner of the property owned by the Bucko Construction Company. The northward route would descend to clear the overhead IHB route as progressing northward within the west side alignment of Chase Street, or, it would proceed northward on property of the Chicago Steel Company. After crossing 5th Avenue (US 20), the railroad would curve northwest onto the CSX Fort Wayne Line right-of-way. Since there are three overhead bridges in close proximity of each other; (the NICTD Mainline, US 12, and the Indiana Toll Road; the route would follow the existing CSX track alignment and swing north to the NS Gary Branch (Sugar Track) at a location that allows for the lesser degree of curvature. Once on the NS alignment after crossing the Little Calumet River Bridge of the NS, the route would divert north and parallel to the NS on two-track abandoned fill formerly used by the Wabash Railroad and the EJ&E Railway to interchange freight cars. The route continues northwest across Clark Road and on to a single-track wide ramp where the EJ&E Railway Gary City Track and the lead to Curtis Yard join it. The City Track currently joins the existing main line from Ivanhoe on the ramp to the bridge over the CSX Barr Subdivision and the NS Chicago Line. The main line splits into a westward connector to the EJ&E Railway Lake Subdivision and eastward into Kirk Yard. As shown on **Exhibit 3-6**, this alternative's length is approximately 5.2 miles. Through meetings with local rail stakeholders the initial alternative 1 was modified to become the final alternative 3.[15]

[14] The Ivanhoe Rail Crossing Junction is commonly referred to in this EIS as the Ivanhoe Interlocking. The definition from the Railroad Rule Book for an "interlocker" follows: An arrangement of tracks and signal so interconnected that their movements must precede each other in a prescribed manner. TranSystems Corporation, 2004.

[15] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

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EXHIBIT 3-6
CSX Porter Branch to Chase Street
Former Alternative 1

April 8, 2004

Source: Railroad relocation alternatives by TransSystems Corp.

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3.5.1.3 IHB-Dune Park Branch to East End of Kirk Yard (Former Alternative #2)

This alternative would access the CSX Porter Branch alignment at Ivanhoe, but would parallel the new CSX alignment to the IHB alignment. Thus, a second main would be constructed through Gary on this alignment. The EJ&E Railway would share two tracks with the CSX for a distance of approximately 4.5 miles. Around Virginia Avenue on Gary's East Side, the Porter Branch would descend to ground level and access its present alignment eastward towards Willow Creek. The IHB High Line begins a curve to the North at this point and bridges the NICTD Main Line, the EJ&E Railway City Track, the Indiana Toll Road, and the CSX Main Line. The route would then enter

Kirk Yard from the east after bridging over the NS Chicago Line. As shown on **Exhibit 3-7**, this alternative's route distance is approximately 9.2 miles. This route was deemed to be of excessive length to EJ&E Railway. In addition, EJ&E Railway stated that entering Kirk Yard from the east would increase the cost of sorting freight cars.[16]

3.5.1.4 Whiting Branch-IHB Main Line (Former Alternative #3)

This alternative follows the present EJ&E Railway mainline crossing the CSX and IHB at Ivanhoe and would continue north to Cavanaugh, where the EJ&E Railway has a wye connector to access the Calumet District. This alternative route would turn northwest onto the Calumet District at Cavanaugh. A second main track would have to be constructed to a point where the route would interface with the double track IHB Kankakee Line that extends northward to Whiting at NS Control Point (CP) 502. This EJ&E Railway route would then utilize the IHB double track main line. En route, the IHB crosses the CSX Barr Subdivision at Calumet Tower and the NS Chicago Line at CP 502. Once the EJ&E Railway trains are north of the NS, they could access their Lakefront line and travel east to Kirk Yard. As shown on Exhibit 3-7, this alternative route distance is approximately 9.8 miles.[17]

[16] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

[17] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

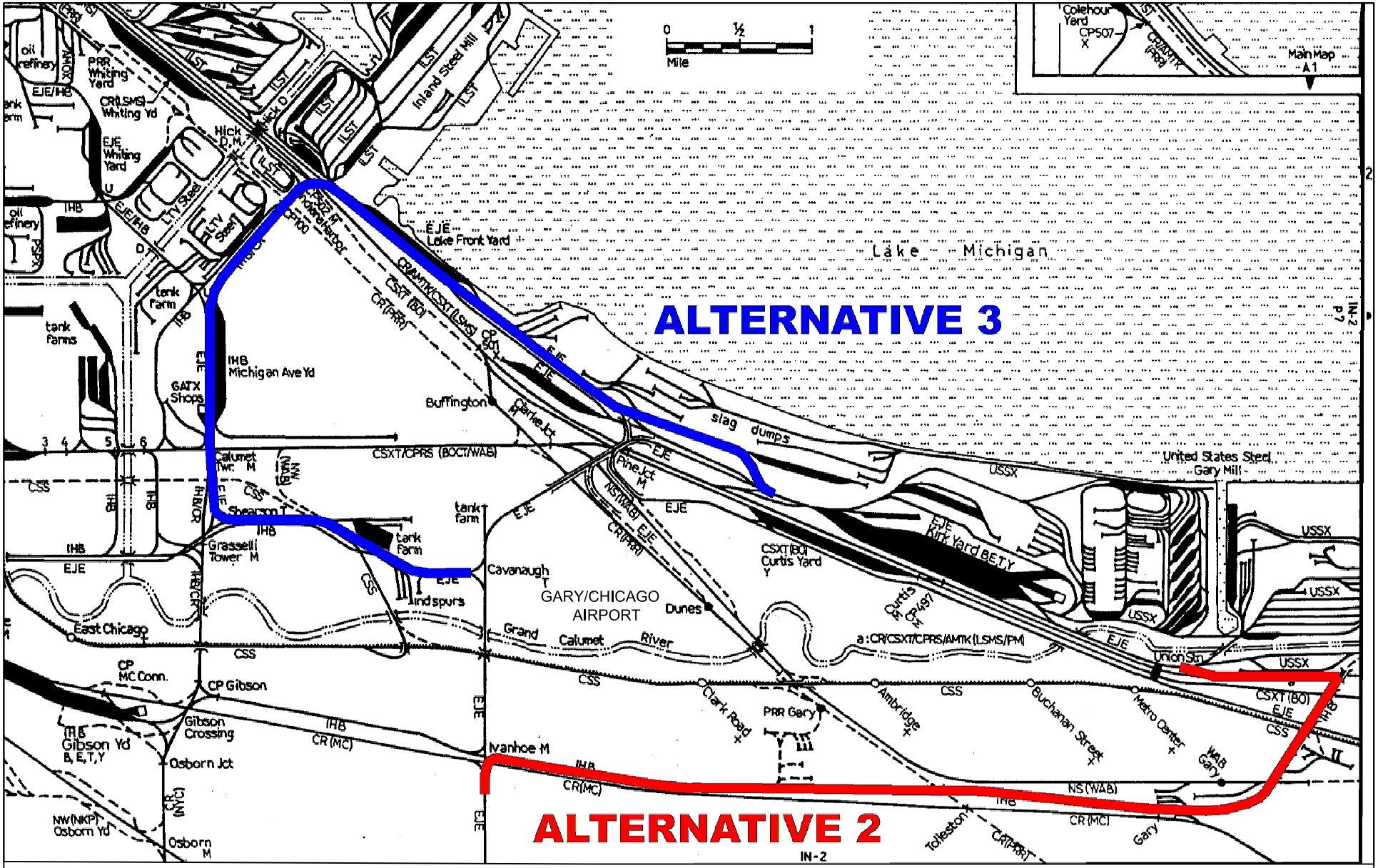

EXHIBIT 3-7

IHB Dune Park Branch to East end of Kirk Yard (former Alternative 2) and Whiting Branch-IHB Mainline (former Alternative 3)

April 8, 2004

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3.5.1.5 Cline Avenue/BOCT Bar Subdivision (New Alternative #1)

Alternative 1 ($22.6 million)[18] was identified to loop around the west end of the extended runway. From the south, this route passes through the Ivanhoe Interlocking and proceeds under the South Shore overhead bridge. The double track alignment then turns northwest at Cavanaugh paralleling the Cline Avenue Toll Road Connector. The new alignment proceeds northwest to a point just east of the Cline Avenue east side frontage road. Then the alignment turns north to parallel the frontage road to a point just south of Indiana Highway 312. The alignment crosses Indiana Highway 312 at grade and turns east on private property paralleling the CSX Barr Subdivision right-of-way. The alignment would pass under a new bridge carrying the Industrial Highway overhead. The proposed EJ&E Railway tracks would parallel the two CSX main tracks eastward to Clark Junction where a short ramp will elevate the tracks up to the present EJ&E Railway overhead bridge at Pine – by spanning both the CSX Fort Wayne Line and the NS Sugar Track on new bridges. The EJ&E Calumet District would access this new alignment by utilizing the present north wye-connecting track at Cavanaugh. After passing under the Cline Avenue Toll Road Connector, this track will curve back to the northwest and tie into the new alignment. As shown on **Exhibit 3-8**, this alternative's route distance for the main line is approximately 0.8 miles.[19] This alternative has continued to be refined through more detailed analysis and meetings between representatives from the airport and the EJ&E Railway. The preferred alternative is described later in this chapter, with an additional phasing option that is under consideration.

3.5.1.6 NICTD-South Shore Alignment (New Alternative #2)

Two options were considered for this alternative and then refined into a third preferred option that would not require any land from the Gary Sanitary District, as no land would be available due to expansion plans for the Sanitary District. The proposed New Alternative #2 ($26.5 million)[20] crosses the CSX Porter Branch and an IHB industry track at the Ivanhoe Interlocking. North of Ivanhoe, the alignment would swing west, then loop back around to the east and pass under the NICTD overhead bridge. This west loop approach before turning east is necessary to avoid passing through the Nature Conservancy property that is made up of dunes and swales and is also the habitat of an endangered species. The land required for the west loop approach is currently occupied by three active businesses. One of these businesses may have to be relocated. The alignment would proceed east along the north side of the NICTD tracks to Clark Road. This parallel segment allows for the construction of an interchange freight yard that would allow for the EJ&E Railway to interchange their three weekly coal trains to the South Shore Freight

[18] The final costs subject to final negotiations between the Airport Authority and EJ&E Railway.

[19] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

[20] The final costs subject to final negotiations between the Gary/Chicago Airport Authority and EJ&E Railway.

Exhibit 3-8
Alternative 1
(Refined Alignment
Route 1D and 1E)

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Source: Railroad relocation alternatives by TransSystems Corp.

Railroad here rather than at Curtis Yard. Other carload interchange could also be accomplished here. The two-track alignment becomes a single track prior to crossing Clark Road. As the alignment nears Clark Road, it would be necessary for approximately 20 houses to be removed in order to permit the track to curve northward to cross Clark Road and pass under the Indiana Toll Road. The embankment carrying US 12 up and over the NICTD tracks would need to be removed. Only Clark Road would remain. It may be necessary to relocate the present parking facility on the north side of the NICTD tracks at the Clark Road Station to the east side once the embankment is removed. Continuing northward, a new single-track bridge would be constructed across the Little Calumet River. The alignment continues northward along the east side of Clark Road. Land acquisition would be required for two businesses between the river crossing and the dormant CSX Fort Wayne Line. Another business may have to be relocated that is situated on the east side of Clark Road between the CSX Fort Wayne Line and the NS Sugar Track. The proposed alignment would cross the CSX Fort Wayne Line right-of-way (track to be severed), cross the NS Sugar Track at grade and access the present out of service EJ&E trackage and ramp up to the overhead bridge at Pine. At the junction of the City Track, the alignment would again revert to two tracks with the joining of the City Track to the overhead bridge at Pine. With the joining of the City Track to the alignment, the existing ramp would be widened from this point to allow for two tracks to Kirk Yard Junction. A crossover would be installed within the alignment to allow trains to depart from Kirk Yard on either of two main tracks to this point. This alternative is shown on **Exhibit 3-9**.[21]

3.5.1.7 Chicago Steel Company Alignment (New Alternative #3)

Two options in the vicinity of the Chicago Steel Company were considered with this alternative ($40.2 million).[22] In the first option, proposed alignment swings eastward at Ivanhoe onto the vacated CSX Porter Branch (assumes Four City CSX relocation). This alignment proposal would swing away from the former CSX Porter Branch approximately 1,500 feet east of the Clark Road crossing, passing under the IHB (Four City) alignment and enter the southwest corner of the Chicago Steel Company (formerly known as the Budd Plant). The alignment would then parallel the north-south section of the loop track to a point where the loop turns east. The EJ&E alignment would curve to the northeast at this point, and cross US 20 at grade. The alignment would then begin a long curve back to the northwest, cross US 12 at grade, and pass under the South Shore west approach fill to their double track bridges over the CSX and NS. The EJ&E alignment could then cross the dormant CSX Fort Wayne Line and tie into the parallel NS Sugar Track before the NS passes under the Toll Road Bridge. The NS alignment would be utilized to a point just west of the Calumet River Bridge to where it would divert to the former interchange yard and access the

[21] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

[22] The final costs subject to final negotiations between the Airport Authority and EJ&E Railway.

Source: Railroad relocation alternatives by TransSystems Corp.

EXHIBIT 3-9
NICTD- South Shore
Alignment
New Alternative 2

April 8, 2004

main line at Pine via the long ramp trackage.[23] In the second option, after paralleling the north-south section of the loop tract, the two-track proposed alignment would turn to an easterly direction, where the loop turns east, to parallel the in-plant storage yard and then turn to the north alongside the former Pennsylvania Railroad connection to the Budd Plant where it crossed US 20. Depending on the room available the second option will either swing farther out to the east as it loops back to the northwest, crosses the CSX Fort Wayne Line and aligns into the NS Sugar Track before it passes under the US 12 overhead bridge. If room does not allow the alignment will pass under the bridge after crossing the CSX then align into the NS before it passes under the South Short Bridge. As shown on **Exhibit 3-10**, the length of this alternative is approximately 5.7 miles.[24]

3.5.1.8 Combination of Tunnel/Trench under Runway; both single and double track options (Initial and New Alternative #4)

The new alternative 4 ($131-169 million)[25], as shown on **Exhibit 3-11**, uses a tunnel under the airfield along the existing alignment. This alternative uses the existing EJ&E Route to Kirk Yard but involves lowering the line below the planned airport runway extension. The proposed tunnel would have to extend northward under the present CSX Fort Wayne Line the NS Gary Branch, the CSX Barr Subdivision, and the NS Chicago Line. Depending upon the future of the EJ&E traffic to and from the Lake Subdivision west, a new depressed junction would have to be constructed that would duplicate the overhead junction now in place on the north side of the mainline bridge at Pine. This alternative would ascend to ground level to enter Kirk Yard. This distance from Ivanhoe to Kirk Yard is 3.7 miles. This route is approximately the same distance as the present EJ&E alignment that skirts the west boundary of the airport. The tunnel would be approximately 6,800 feet in length.[26]

3.5.1.9 Multi-Modal Facility Center (Alternative #5)

During the evaluation of the Trench/Tunnel Alternative, a concept for greater use of the trench/tunnel facility was examined, as shown on **Exhibit 3-12**. This concept would allow the trench/tunnel to function not only as a freight route for the EJ&E, but also as a portion of a rerouted commuter rail line and a new intercity high-speed rail line. The synergy created by this triple use was expected to increase the cost/benefit of the original Trench/Tunnel alternative by spreading the base costs among a wide array of users. The proposed EJ&E route would be the same as the Trench/Tunnel Alternative 4 but the trench and tunnel would be widened from 1 or 2 tracks to 6 tracks. Two of those tracks would be used for a rerouted South Shore commuter service and two

[23] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.
[24] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.
[25] The final costs subject to final negotiations between the Airport Authority and EJ&E Railway
[26] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

Source: Railroad relocation alternatives by TransSystems Corp.

Gary/Chicago International Airport
Chicago's Best Approach!

EXHIBIT 3-10
Chicago Steel Company
Alignment
New Alternative 3

April 8, 2004

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Source: Railroad relocation alternatives by TransSystems Corp.

Gary/Chicago International Airport
Chicago's Best Approach!

EXHIBIT 3-11
Tunnel/Trench Under Runway
Initial and New Alternative 4

April 8, 2004

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Source: Railroad relocation alternatives by TransSystems Corp.

EXHIBIT 3-12
Multi-Modal Facility Center
Final Alternative 5

April 8, 2004

XRLT-LRLNCLS : None
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for the planned Midwest High Speed Rail initiative operations. A major multi-modal facility would be constructed on top of the tunnel section allowing for direct interchange of passengers between the airport terminal, commuter trains, and high-speed intercity trains.

In this alternative, the existing South Shore commuter rail line would be rerouted at Hammond to follow the existing CCSX Barr subdivision stopping at downtown East Chicago and then at the Gary/Chicago International Airport terminal. It would then return via the tunnel and trench to its existing alignment at the current crossing of the EJ&E Railway with the South Shore. Incidentally, this route would return the South Shore to close to its original alignment through East Chicago prior to the construction of the Indiana Toll Road in the 1950s.

This alternative would also provide a connection for planned high-speed services now proposed to operate east of the airport. Although this connection is slightly longer than other proposals, the synergies of the multi-modal station at the airport terminal may overcome any other possibilities. The alignment would connect the currently planned route along the Norfolk Southern line to the CSX Porter Branch, which is also the route planned to be consolidated onto the IHB "High Line" as proposed by the Four City Consortium.[27]

3.5.2 Level 1 Screening of Railway Relocation

The Federal Aviation Administration, with the assistance of the Gary/Chicago Airport Authority, identified a statement of purpose and need for the proposed improvements as summarized in Chapter 2, Purpose and Need, of this EIS, which is being coordinated with various review agencies as a part of the evaluation process. The relevant portions for these alternatives are repeated below.

- The purpose of the Proposed Action of improving Runway 12-30 is to comply with current FAA safety standards on the existing Runway 12-30. There is a need to improve the existing runway to increase the operating margin of safety and comply with FAA standards.
- The purpose is to provide takeoff and landing capabilities for cost effective travel by ARC C-III aircraft within a 1,500-mile range from the Gary/Chicago International Airport. There is a need to provide the runway length to meet the requirements of current and future users.
- The purpose of the Proposed Action to select site(s) for a potential future passenger terminal and/or future cargo facility to serve the users of the Gary/Chicago International Airport is to reserve these areas for potential long-term aviation related users. There is a need to acquire and remediate as necessary site areas designated for future aviation related uses by the Gary/Chicago International Airport.

[27] Gary/Chicago Airport Authority, prepared by TranSystems Corporation, *Gary/Chicago Airport, Railroad Relocation Study*. May 9, 2003.

The airport retained TranSystems Corporation to assemble and examine relocation alternatives for the EJ& E Railway in a manner that is compatible with the Gary/Chicago International Airport improvement program. The findings of the rail relocation analysis process were presented in a report entitled Gary/Chicago International Airport Railroad Relocation Study, dated May 9, 2003. Five criteria were used to shape preliminary alternatives, they were:

- Maintain rail service and ensure reliability of service
- Minimize grade crossing exposure
- Minimize additional costs to the railroad
- Minimize interlockings (railroad junctions)
- Minimize the number of right-of-way acquisition needs

In the case of the railway relocation project and its relationship to the EIS purpose and need, an important issue to the EJ&E Railway during stakeholder discussions was to maintain the current control that they have on their rail lines. This includes controlling the right-of-way versus obtaining trackage rights. Doing so allows the EJ&E Railway to dispatch its own trains and have greater control over train arrival and departure times. Without operational acceptance by the EJ&E Railway, the timing for implementation may not meet the airport's need to remedy the dimensional constraints of the runway facilities before the FAA criteria might require shortening the usable length.

The no action alternative did not pass the level 1 test of meeting purpose and need; however, it is retained for further screening as required by the CEQ. Of the remaining nine alternatives under study, four of these alternatives did not pass the level 1 test of meeting purpose and need, since the primary rail stakeholder, the EJ&E Railway, did not consider them viable for continued operation. These four include three of the four initial alternatives (which were revised and replaced by the new alternatives) and final alternative 3. This initial and new alternative 4, final alternative 1, final alternative 2, and alternative 5 have been retained for further screening.

3.5.3 Level 2 Screening of Railway Relocation

Using constructability and cost as the primary analysis tools, three of the remaining alternatives were eliminated. The primary tests under this screening level are cost effectiveness and constructability concerns. The alternatives eliminated due to this screening include the development of initial and new alternative 4, and alternative 5, which require long-term investments of a large magnitude by the airport and have unknown environmental impacts due to below grade water table levels and known contamination in the area. This screening process leaves three alternatives for further review and analysis, the no action alternative, final alternative 1 and final alternative 2.

3.5.4 Level 3 Screening of Railway Relocation

The third level of screening is to consider environmental issues to determine if preliminary environmental concerns are of a level that require further more detailed analysis or are such that the alternative under consideration is not feasible or practicable for implementation. Early comments by agencies indicate that final alternative 1 is preferred environmentally to final alternative 2 because of its proximity to existing natural areas that have been identified for preservation. The alternative 2 route has been established to avoid development on these areas, but would run within close proximity. Mitigation of the environmental concerns for alternative 2 is anticipated to increase its development cost. Since the estimated development cost is already almost twice that of alternative 1, it has been found to be less cost effective and practicable to implement. Therefore, only alternative 1 has been identified for further more detailed analysis; however, later refinements to alternative 1 identified an option for phasing its development as described below.

3.5.5 Description of Preferred Railway Relocation for Detailed Analysis

Based upon this screening process, two rail alternatives will be analyzed in detail as a part of the EIS process; these alternatives are no action and final alternative 1, utilizing a loop around the west end of the extended runway. **Exhibit 3-13** shows later refinements to final alternative 1 that have been developed by TranSystems in conversation with the EJ&E Railway. The refined preferred routing for the relocation of the EJ&E Railway is referred to as Route 1D. In addition, an interim phase for the relocation of the preferred route has been identified, Route 1E (also shown in Exhibit 3-13). This EIS has examined both the interim phase, Route 1E, and the preferred route, Route 1D, so that the Gary/Chicago Airport Authority may proceed with either route, as funding allows. Under both Route 1D or 1E, the area off the northwest end of the existing Runway 12-30 will be cleared of obstructions and will allow for the improvement of the RSA and ROFA in compliance with the FAA design standards.

Exhibit 3-13
Preferred E.J.& E. Rail Alignments

Source: Railroad relocation alternatives by TransSystems Corp.

April 8, 2004

3.6 ALTERNATIVES EVALUATED FOR EXISTING TERMINAL FACILITY EXPANSION

Exhibit 3-14 provides an overview of the three on-site alternatives evaluated for the existing terminal facility improvements under review for this EIS (including the no action option). Off-site alternatives, such as the use of alternative modes of transportation or the use of other airports were not re-evaluated for landside improvements, since their review as a part of the airside alternatives process is still considered applicable under this chapter of the report.

EXHIBIT 3-14
Existing Terminal Alternatives Matrix

Level	Criteria	No Action	Expand Existing Terminal	Develop New Terminal
1	**Purpose and Need**			
	Provide facility commensurate with forecast-level of passenger enplanements	No	Yes	Yes
	Continue to Next Level?	**Yes**	**Yes**	**Yes**
2	**Constructability and Cost**			
	Land acquisition requirements	No	No	Yes
	New access roadway requirements	No	No	Yes
	Earthwork and drainage issues	No	Minimal	Yes
	Relocation of aviation facilities	No	No	Yes
	Maintenance of airport operations	Yes	Yes	Yes
	Cost effectiveness	Yes	Incremental expansion -- more cost effective	Costly option for near-term
	Continue to Next Level?	**Yes**	**Yes**	**No**
3	**Environmental**			
	Avoid or minimize social impacts	Yes	Yes	
	Avoid or minimize environmental impacts	Yes	Yes	
	Wetland impacts	No	No	
	Floodplain impacts	No	No	
	Potential hazardous waste or contamination	No	No	
	Analyze in Chapter 5.0?	**Yes**	**Yes**	

Source: Aerofinity, Inc., March 2003.

3.6.1 Existing Terminal Alternatives Considered

3.6.1.1 No Action for Terminal Building

The FAA accepted the low forecast scenario from the 2001 Airport Master Plan for planning purposes. The low forecast scenario includes an increase in the enplaned passengers using Gary/Chicago International Airport. If this growth occurs, the facilities provided by the existing terminal building will be too small to accommodate the passenger traffic in a safe and efficient manner. If expanded terminal facilities are not provided when indicated as needed, the level of service offered to passengers at Gary/Chicago International Airport will be decreased. If landside delays occur due to inadequate terminal facilities, the users of Gary/Chicago International Airport will not be able to receive full benefit of the airside facilities, thus, decreasing the overall utility of the airport.

3.6.1.2 Expand Existing Terminal Facilities

The 2001 Airport Layout Plan shows an expanded terminal facility with an expanded building footprint of approximately 22,000 square feet on the east end. The 2001 Airport Master Plan recommends that the existing terminal building be expanded to the east to maximize the existing terminal site area. Based upon the master plan analysis, expansion of the existing building can meet the passenger demand from the low-case forecasts.[28]

3.6.1.3 Develop New Terminal Facilities

An alternative to expanding the existing terminal facilities is to develop new terminal facilities to meet the forecast growth in enplaned passengers. The ALP identified a location for the development of new terminal facilities, which will require additional land acquisition. This and other locations could allow for the development of a new terminal facility; however, the only viable sites for new terminal facilities are those sites that might expand beyond the current terminal site capabilities. Any investment in a new terminal facility would be a significant one. It would only make sense to make that investment at a site that could accommodate substantial long-term growth. For the purposes of this alternatives analysis, the expansion of an existing terminal facility is being compared to the general requirements for development of a new terminal facility.

3.6.2 Level 1 Screening of Existing Terminal Alternatives

The Federal Aviation Administration, with the assistance of the Gary/Chicago Airport Authority identified a statement of purpose and need for the proposed improvements as summarized in Chapter 2, Purpose and Need, of this EIS, which is being coordinated with various review agencies as a part of the evaluation process. The relevant portions for these alternatives are repeated below.

- The purpose of the Proposed Action of expanding the existing terminal is to provide a passenger terminal to meet the needs of airline passengers that are attracted to the Gary/Chicago International Airport. There is a need to expand the terminal building size to meet the needs of the Gary/Chicago International Airport airline passengers.

The No Action alternative does not meet the purpose and need and it is not considered reasonable. However, CEQ regulations implementing NEPA state that the No Action Alternative shall be included, thus this alternative was considered for further analysis and is discussed later in this chapter. The No Action alternative establishes the baseline from which all other alternatives are measured.

Both of the other alternatives under evaluation meet the purpose and need statement and will be considered further in the landside level 2 screening analysis.

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[28] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

3.6.3 Level 2 and 3 Screening of Existing Terminal Alternatives

The level 2 screening process focuses on the constructability and cost aspects of the alternatives. The level 3 screening process considers significant known environmental issues. In comparing an expansion of the existing terminal building to the investment in a new terminal building, the cost and time requirements for acquiring and developing a new terminal facility influence greatly the decision regarding the timing for relocation. In this case, where the existing terminal site has the ability to accommodate the forecast growth for the low-case activity level, it makes more sense to invest in an expansion of the existing terminal building and to continue to make use of the facility that exists until such time as the demand clearly dictates a move to a new site. This is particularly true given the fact that there are no known environmental impediments to an expansion of the existing terminal facility. Accordingly, the immediate development of a new terminal facility has been eliminated from further consideration at this time; although the selection of and reservation of a site for the longer-term future is considered under the next section of this alternatives analysis. The alternatives for no action and expansion of the existing terminal building are recommended for further more detailed evaluation under this EIS. The expansion of the existing terminal is the preferred alternative of the Gary/Chicago Airport Authority.

3.7 ALTERNATIVES EVALUATED FOR ACQUISITION/RESERVATION OF LAND FOR LONG-TERM DEVELOPMENT OPTIONS

As part of the proposal for Runway Safety Area improvements, including the railroad relocation, a significant amount of land would be purchased. In many cases, the acquisitions would either sever access to the remaining parcel(s) or partially take parcels where it would make the remaining parts unusable to the current owner. Therefore, the airport is looking to purchase entire parcels rather than a partial interest. The newly acquired land provides opportunities for the airport to fulfill its desire to have land for potential long-term airport development. **Exhibit 3-15** provides an overview of the five alternatives evaluated for the reservation of land for long-term development options under review for this EIS (including the no action option). The need for significantly expanded or new terminal and cargo facilities to meet the demands of users at the airport is not expected in the near-term. However, the contaminated condition of much of the land necessitates a long lead-time for environmental remediation and acquisition before the land would be available for subsequent use. Therefore this environmental review is for site acquisition, and remediation of contaminated properties. Actual development to meet the potential long-term passenger terminal and cargo needs at the airport will require a future environmental document specific to the development proposed then. The EIS review was conducted prior to and without any consideration to the Indiana Army National Guard lease for a site on the south side of Runway 12-30.

EXHIBIT 3-15 Alternatives Evaluated for Acquisition/Reservation of Land for Long-Term Development Options						
Level	**Criteria**	**No Action**	**Expand Existing Terminal to Meet Long-Term Passenger Demand**	**Plan for New Cargo Facility within Existing Airport Property**	**Plan for New Terminal NW/ New Cargo SW of New End of Rwy 12**	**Plan for New Cargo Facility NW/ New Terminal SW of New End of Rwy 12**
1	**Purpose and Need**					
	Secure sites to allow for long-term facility development at airport as needed	No	No	Yes	Yes	Yes
	Continue to Next Level?	**Yes**	**No**	**Yes**	**Yes**	**Yes**
2	**Constructability and Cost**					
	Land acquisition requirements	No		No	Yes	Yes
	New access roadway requirements	No		Yes	Yes	Yes
	Earthwork and drainage issues	No		Yes	Yes	Yes
	Relocation of aviation facilities	No		Yes	No	No
	Maintenance of airport operations	Yes		Yes	Yes	Yes
	Cost effectiveness	Yes		No	Yes	Less, constrained area/ poor access
	Continue to Next Level?	**Yes**		**No**	**Yes**	**No**
3	**Environmental**					
	Avoid or minimize social impacts	Yes			Yes	
	Avoid or minimize environmental impacts	Yes			Yes	
	Wetland impacts	No			Yes	
	Floodplain impacts	No			Yes	
	Potential hazardous waste or contamination	No			No	
	Analyze in Chapter 5.0?	**Yes**			**Yes**	

Source: Aerofinity, Inc., March 2003.

3.7.1 Long-Term Development Options Considered

3.7.1.1 No Action Alternative

Under the no action alternative, no further action would be taken other than the identification of possible locations for these future facilities on the 2001 Airport Layout Plan, which has already occurred.

No action would preclude the opportunity for the airport to work closely with property owners to implement an orderly assembly of land. In addition, it could create a delay once the purpose and need for the development of these projects is identified, which in turn could preclude the airport from meeting the future demands of facility users in a timely way.

3.7.1.2 Expand Existing Terminal to Meet Long-Term Passenger Demand

The first alternative under consideration is the option to incrementally enlarge the existing terminal facilities to meet demands for the potential high-growth forecast scenario. During the 2001 Airport

Master Plan, it was determined that sufficient area was not available within the existing airport property boundaries to expand the existing terminal to meet the long-term high-growth passenger activity levels without enlarging the terminal area to the northeast across Industrial Highway. This would require continued operation of the existing terminal building while building a major replacement program on the site and across the existing access roadway. When compared to other locations, it was not considered as practicable or feasible to expand and build new facilities at the existing terminal area, as it is to continue operation of the existing terminal while developing a new facility at another site.

3.7.1.3 Plan for New Cargo Facility within Existing Airport Property

As a part of the Master Plan, several sites within the existing airport property were reviewed as potential locations for a new or expanded cargo facility. It was determined that cargo developments in these areas were not the best use of the space, which should be reserved for airport support/commercial aviation related development. In addition, the access to these areas would not provide the same direct link to I-90 as other sites, which could be beneficial to cargo users.

3.7.1.4 Plan for New Terminal Area Northwest/New Cargo Facility Southwest of the New End of Runway 12

The concept of constructing a new terminal facility on the north side of the approach end to Runway 12 and a new air cargo complex on the south side of the approach end of Runway 12 was studied as a part of the 2001 Airport Master Plan. This alternative provides easy highway access from Interstate 90 and flexibility for future airport expansion beyond the current planning period. Additionally, relocating the terminal to this area would allow the airport to expand passenger parking outside the terminal and airport concessions inside the terminal, which are two large sources of airport revenue. The construction of a new air cargo complex in the southwest quadrant of the airport would also allow for easy access to I-90.[29]

3.7.1.5 Plan for New Cargo Facility Northwest/New Terminal Area Southwest of the New End of Runway 12

The concept of constructing a new terminal facility on the south side of the approach end to Runway 12 and a new air cargo complex on the north side of the approach end of Runway 12 was also studied as a part of the 2001 Airport Master Plan. This alternative also provides highway access from Interstate 90, but with a longer access route. Relocating the terminal to this area would allow the airport to expand passenger parking outside the terminal and airport concessions inside the terminal, which are two large sources of airport revenue, but would put the terminal in a

[29] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 5. November 2001

more constrained environment than on the north side of Runway 12-30. The construction of a new air cargo complex in the northwest quadrant of the airport would also allow for easy access to I-90.

3.7.2 Level 1 Screening of Long-Term Development Alternatives

The Federal Aviation Administration, assisted by the Gary/Chicago Airport Authority identified a statement of purpose and need as summarized in Chapter 2, Purpose and Need, of this EIS, which was coordinated with various review agencies as a part of the evaluation process. The relevant portion for these alternatives is repeated below.

- The purpose of the Proposed Action to select site(s) for a future passenger terminal and/or future cargo facility to serve the users of the Gary/Chicago International Airport is to preserve these areas for the long-term aviation related users. There is a need to acquire and remediate as necessary site areas designated for future aviation related uses by the Gary/Chicago International Airport.

Two of the five alternatives fail the tests of the level 1 screening. Both the no action alternative and incremental expansion of the existing terminal would not meet the requirements of acquiring and/or reserving sites to allow for the smooth implementation of long-term facility development without delays. The no action alternative will still be considered for further analysis as required by CEQ regulations. The other three alternatives were carried forward for analysis under level 2 screening.

3.7.3 Level 2 Screening of Long-Term Development Alternatives

Although it was possible to develop a new cargo facility on the existing airport property, preserving this property for cargo use is not considered cost effective since there are other better uses of this property among airport support and commercial aviation activities. The alternative to plan for a new cargo facility northwest and new terminal area southwest of the new end of Runway 12 was also not considered cost effective or the best long-term plan since this location for a terminal is very constrained for development beyond the current planning period. In addition, the southwest quadrant location for the terminal did not offer user-friendly access to terminal or parking areas.

3.7.4 Level 3 Screening of Long-Term Development Alternatives

The no action alternative and new terminal area northwest/new cargo facility southwest alternative were reviewed under level 3. In both cases there are no significant environmental issues that preclude further detailed study during the EIS. The Gary/Chicago Airport Authority preferred alternative is to actively reserve the areas identified for the potential long-term development shown on the 2001 Airport Layout Plan by proceeding with the assembly of this area and identifying any environmental issues of concern.

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